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ABSTRACT

Information to assist the school community develop and adapt a self-sufficient safety program for its school is presented in this workbook. Steps involved in the planning process are outlined in section 2. Section 3 describes how to estimate potential earthquake impact and how to identify hazards. The fourth section discusses what to expect and avoid during an earthquake, the importance of drills, and protective measures. Section 5 prepares staff to implement first aid, search and rescue, fire control, and other priority actions. The sixth section examines alternative means of communication during disruption of telephone and power services and offers suggestions for parent communication. The last section examines responsibilities of staff in the aftermath of the disaster, with a focus on short-term and extended shelter plans. (LMI)

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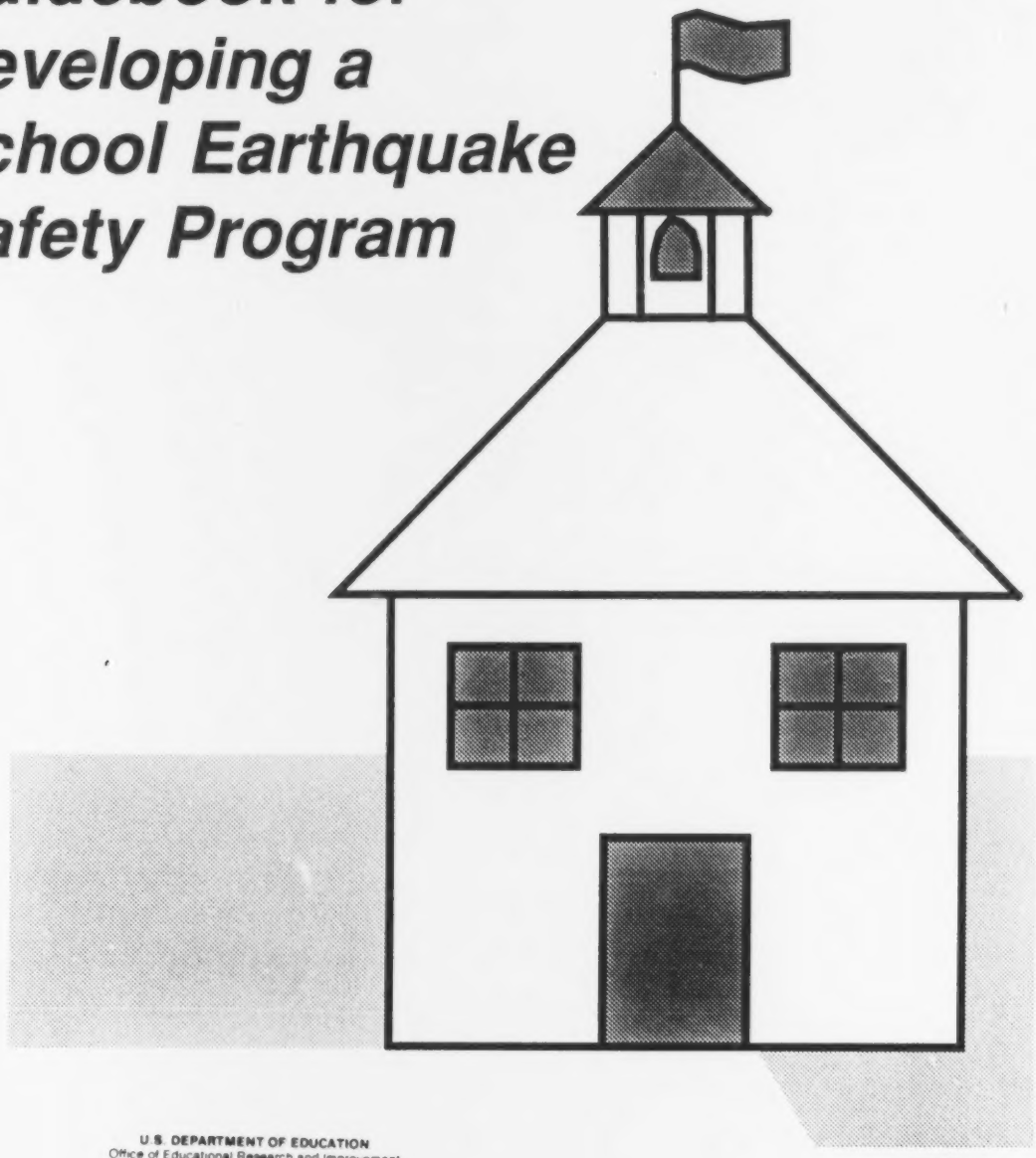
Guidebook for Developing a School Earthquake Safety Program



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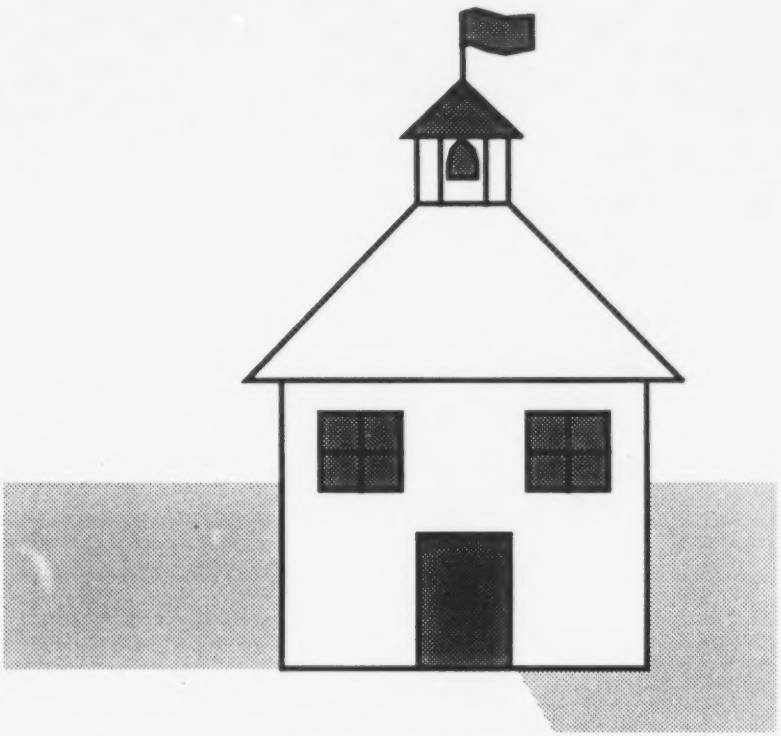
Guidebook for Developing a School Earthquake Safety Program



FEDERAL EMERGENCY
MANAGEMENT AGENCY

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Introduction

This guidebook is designed to assist the school community of principal, teachers, staff, parents, and students to develop and tailor an earthquake safety program for their school.

An earthquake safety program involves more than preparing a response plan. It is an ongoing activity that includes identifying the hazards in your school; conducting earthquake drills; and involving teachers, parents, and students in developing a plan for providing students with care and shelter until they can be reunited with their parents. An effective program also includes training and exercises, as well as classroom discussions and activities to help students understand the importance of taking quake-safe actions.

The need for an individual school earthquake safety program and an effective earthquake response plan is based on the following assumptions:

- A major earthquake can occur without warning and could occur during school hours.
- This event would cause widespread damage resulting from ground shaking and other hazards triggered by the earthquake (e.g., fires and the release of toxic materials).
- Transportation routes, telephone communications, and other utility services would be disrupted.
- Medical, fire, and rescue personnel would be severely overtaxed and would not be able to respond to every school within the affected area for several hours.

Individual school communities should prepare to be self-sufficient — capable of relying on their own resources to protect and care for the school population until outside help is available. The guidebook provides the foundation for developing this capability. **It is intended to be used by the school principal and a committee of teachers, parents, and students** as a guide and workbook for developing action plans for their school's earthquake safety program.

Because earthquakes occur less frequently than other disasters, the extra time it takes to plan for this event is often weighed against the "odds" that it will not occur in this decade, or that it will not happen while school is in session. Although many planning issues in this guidebook apply only to earthquakes, most also apply to other hazards such as fires, floods, hurricanes, and tornadoes. Therefore, the extra time you spend on earthquake planning is also time well spent in enhancing your general emergency plans.

Steps leading to the creation of action plans are outlined in **Section 2, The Planning Process.** Each remaining section of the guidebook addresses a specific program area:

Section 3, Hazard Identification, focuses on how to estimate the potential impact of a major earthquake on your city, town, school, and classrooms, and how to identify hazards you can eliminate, reduce, or only anticipate.

Section 4, Earthquake Drills, discusses immediate dangers to expect and to avoid during an earthquake, the importance of earthquake drills, and appropriate protective measures to take.

Section 5, Immediate Response and Care Requirements, assumes that principals, teachers, and other staff members will be required to carry out first aid, search and rescue, fire control, and other first-hour priority actions without assistance from emergency response personnel.

Section 6, Communication, addresses the need to develop alternative plans for communicating when electrical power and telephone services are disrupted. The section also includes suggestions for conveying emergency information to parents.

Section 7, Post-Earthquake Shelter Planning, considers the aftermath of a major earthquake and the extraordinary responsibilities you may have to assume to care for and shelter the student population beyond the normal dismissal hour.

The Guidebook supplement, (FEMA 88a) **Earthquake Safety Activities for Children,** is designed to help classroom teachers prepare their students to cope safely with earthquakes. The supplement contains excerpts from (FEMA 159) **EARTHQUAKES - A Teacher's Package for K-6,** developed for FEMA by the National Science Teachers Association.

The Planning Process

The planning approach described in this section is one way to work toward developing action plans for your earthquake safety program. The best way to proceed, however, is your way. Consider the steps in this section as suggestions to help you get started. These steps cover:

- How to generate interest and recruit support.
- How to divide your planning program into manageable components.
- How to get started.

Take one step at a time. As you move forward, each action you take to increase the earthquake safety of your school's population will be worthwhile. Benefits derived from your efforts will extend beyond the school setting into the home and community. The preparations learned and practiced by staff members, students, and parents will help these individuals cope more effectively — no matter when or where an unpredictable emergency occurs.

STEP ONE: Generate Interest.

If an earthquake took place during school hours, would administrators, teachers, students, and parents know how to react appropriately? Or would there be uncertainty, confusion, and needless injuries?

The following assumptions and the problems they are likely to cause reflect the current state of preparedness at most schools in high or moderate earthquake risk areas. This account is offered to help you generate interest in the need to prepare all members of the school community to cope safely and effectively during and following an earthquake.

Emergency Planning

In many communities, emergency response plans are prepared on the assumption that schools will look after themselves. In these same communities, school plans are generally developed on the assumption that essential services and emergency assistance will be provided by community agencies. Earthquake plans, as well as plans for other potential disasters, are often based on the assumption that water, gas, electricity, food supplies, communication systems, and transportation systems will remain available and operative.

Little effective attention has been given to the necessity for self-sufficiency and the state of isolation that could realistically confront schools in case of a major earthquake.

Teacher Training

It is generally unclear just what teachers are expected to do in an earthquake emergency, and teachers are untrained for some of the responsibilities most often expected of them. For example, it is assumed that teachers will give first aid in an emergency, but few teachers are trained in first aid and there is usually no requirement for such training. Further, teachers are not systematically briefed on the many problems that must be dealt with in case of an earthquake, nor on the special needs of children on such occasions.

It is often assumed that teachers will stay with their students in an emergency until parents arrive. Some parents, however, may not be able to reach the school for many hours. From the first hour following an earthquake, teachers will be torn between responsibilities toward their students and concern for their own families.

Student Education

There is little evidence of programs for training children to understand and deal with the earthquake hazard at school, at home, and in the community. The defense that some children are frightened by thinking about earthquake danger could just as well be made against educating children for fire safety.

Parent Education

The respective responsibilities and authorities of school personnel and parents in the case of an emergency are rarely addressed. Too often, school emergency plans provide, and/or parents assume that students will be dismissed.

When moderate earthquakes have occurred during school hours, major problems were created by anxious parents telephoning schools and flooding areas in autos seeking to remove their children. In many instances, traffic jams were so bad that no emergency vehicles could reach the schools.

Fortunately, in many cases following these actual events, school administrators directed that no student be allowed to venture home alone. Throughout one school district, there were reports of home damage, leaking gas, broken water pipes, and downed power lines. To send students home would have forced some 12,000 children onto the city streets. Approximately 54 percent of these children would have been sent to homes where both parents were at work, many at a considerable distance from home. Children as young as age five would have been alone and in severe danger.

These and similar concerns reflecting your own state of earthquake preparedness, as well as your expectations of what could be accomplished, might be raised at faculty meetings, at district-level conferences with principals, safety officers, or board members, and at parent-teacher meetings at your school.

Once you've generated interest, keep it positive and active. With time and patience, interest should evolve into concern and ultimately, into action.

STEP TWO: Recruit support

At the initial stage of your planning effort, form an earthquake safety committee to recommend the course for your program and to get the program moving

Members of this committee might include:

- The principal;
- The assistant principal or head teacher;
- Teachers with current first aid/CPR training certificates;
- School secretary, nurse, custodian;
- Parent representatives; and
- Student representatives (from upper grades in an elementary school)

As you go through this guidebook and begin to develop an action plan for your program, don't hesitate to call on some experts for more information and advice. Eventually, you'll have your own support network, which might include:

- **Local emergency services officials (e.g., fire, police, city emergency managers);**
- **Community American Red Cross chapter representatives;**
- **Experts on geology, structural engineering, and architecture at your local college or university or in private practice;**
- **School district and/or city building inspectors;**
- **Members of local environmental groups, civic organizations, and retirement associations;**
- **Community/neighborhood representatives with special skills (e.g., ham radio operators, building engineers, doctors, nurses, and medical paraprofessionals); and**
- **Safety experts in business and industry.**

STEP THREE: Divide your planning activity into manageable components.

The components of your school's earthquake safety program should reflect plans and activities that will meet your expectations of what could be accomplished over a period of several years.

Figure 1 is a list of possible program components that you may want to consider. Several of these components can be further divided into planning units as shown under **EARTHQUAKE RESPONSE PLAN.**

- **HAZARD IDENTIFICATION**
- **EARTHQUAKE DRILLS**
- **EARTHQUAKE RESPONSE PLAN**
  - **A chain of command.**
  - **A set of procedures for:**
    - **Post-earthquake building evacuation;**
    - **Student and staff safety (search and rescue, first aid, and record keeping);**
    - **Building security (fire control, utilities check, damage assessment); and**
    - **Communication (on- and off-site).**
    - **Staff roles and responsibilities.**
  - **Simple lists of specific actions to be taken by all staff members during and immediately following an earthquake.**
- **EARTHQUAKE EDUCATION**
- **TRAINING PROGRAMS**
- **HAZARD REDUCTION PROJECTS**
- **SHELTER PLANS**
- **EQUIPMENT AND SUPPLIES**

Figure 1. SUGGESTED PROGRAM COMPONENTS

STEP FOUR: Get Started

The following STEP-BY-STEP CHECKLIST is an outline of the planning steps covered in Sections 3 to 7.

(a) Use the Checklist to estimate WHAT could be accomplished during your first year of planning by selecting two or more steps from two or more sections.

(b) Decide WHO (individual or subcommittee) will take each step.

(c) Add a manageable deadline WHEN each step will be completed.

(d) At the end of your first year, use the Checklist again to chart your progress and project future year plans.

Step-by-Step Checklist

SECTION 3: HAZARD IDENTIFICATION

	WHAT	WHO	WHEN
❑	**STEP ONE:** Obtain or draw a map of the school and school grounds.	_____	_____
❑	**STEP TWO:** Identify potential earthquake hazards in classrooms.	_____	_____
❑	**STEP THREE:** Identify earthquake (and other hazards throughout school buildings).	_____	_____
❑	**STEP FOUR:** Identify potential hazards along building evacuation routes.	_____	_____
❑	**STEP FIVE:** Identify potential hazards in the neighborhood surrounding your school.	_____	_____
❑	**STEP SIX:** Determine the vulnerability of your community to earthquake effects.	_____	_____

SECTION 4: EARTHQUAKE DRILLS

	WHAT	WHO	WHEN
❑	**STEP ONE:** Hold a staff meeting to discuss earthquake dangers and response actions.	_____	_____
❑	**STEP TWO:** Hold a special meeting or workshop with teachers to discuss student preparation activities.	_____	_____
❑	**STEP THREE:** Develop procedures for holding classroom earthquake drills.	_____	_____
❑	**STEP FOUR:** Determine and discuss procedures for evacuating the building.	_____	_____
❑	**STEP FIVE:** Plan for the unexpected.	_____	_____
❑	**STEP SIX:** Designate an outdoor evacuation assembly area.	_____	_____
❑	**STEP SEVEN:** Practice and evaluate the effectiveness of your earthquake drills.	_____	_____

SECTION 5: IMMEDIATE RESPONSE AND CARE REQUIREMENTS

	WHAT	WHO	WHEN
❑	**STEP ONE:** Anticipate first-hour priorities.	_____	_____
❑	**STEP TWO:** Assess staff skills and identify training requirements.	_____	_____
❑	**STEP THREE:** Develop procedures and assign roles and responsibilities.	_____	_____
❑	**STEP FOUR:** Prepare simple response checklists for each staff member.	_____	_____
❑	**STEP FIVE:** Discuss and coordinate your plan with school district and local emergency services officials.	_____	_____
❑	**STEP SIX:** Inform parents of your earthquake response plan and their role in an emergency (see Section 6).	_____	_____
❑	**STEP SEVEN:** Discuss your earthquake response plan with students.	_____	_____
❑	**STEP EIGHT:** Exercise your response plan.	_____	_____

SECTION 6: COMMUNICATION

WHAT	WHO	WHEN
❑ **STEP ONE:** Determine on-site communication needs.	_____	_____
❑ **STEP TWO:** Determine off-site communication resources and develop reporting procedures.	_____	_____
❑ **STEP THREE:** Submit a copy of your communication plan to your school district and local emergency response offices.	_____	_____
❑ **STEP FOUR:** Develop procedures for conveying emergency information to parents.	_____	_____

SECTION 7: POST-EARTHQUAKE SHELTER PLANNING

WHAT	WHO	WHEN
❑ **STEP ONE:** Develop a list of care and shelter planning assumptions.	_____	_____
❑ **STEP TWO:** Estimate the number of students requiring care and shelter.	_____	_____
❑ **STEP THREE:** Determine short-term care and shelter requirements.	_____	_____
❑ **STEP FOUR:** Identify additional requirements for long-term care and shelter.	_____	_____

Hazard Identification

This section is intended to help you identify potential earthquake hazards at your school. Regardless of your current capability to reduce hazards, simply knowing what to expect is the foundation of quality plans and procedures for conducting classroom and post-earthquake building evacuation drills and for preparing response and shelter plans.

Your hazard assessment should also consider the potential impact of a major earthquake on your community and the probable hazards it could cause. This broad view will help you to anticipate extraordinary problems. For example, additional plans will be required if your school is located below a dam or near a hazardous materials site.

Checklists in this section cover:

- How to identify potential earthquake hazards in classrooms.
- How to identify prevalent hazards throughout school buildings.
- How to identify potential earthquake hazards along building evacuation routes.
- How to identify potential earthquake hazards in the neighborhood and community.

As you identify potential hazards, put into perspective those you can eliminate, reduce, or only anticipate. You'll discover that many hazards can be reduced substantially or even eliminated with little effort and no cost (e.g., removal of heavy objects from high shelves). Other hazard reduction measures might be phased into your routine maintenance schedule. Since the more costly measures are likely to compete with other budget items, you may wish to develop a plan to reduce a few hazards each year.

STEP ONE: Obtain or draw a map of school and school grounds.

This combination plot map and floor plan will serve many purposes. It will be used to note potential hazards and the location of utilities, emergency equipment, and supplies. Further, it will provide a basis for (1) establishing an evacuation route; (2) identifying a safe, open-space assembly area; and (3) developing procedures for conducting emergency response activities (e.g., search and rescue, damage assessment, etc.).

Mark clearly by name the location of classrooms, library, and other activity rooms, restrooms, heating plant, hallways, and all doors and closets. In addition, locate:

- ❑ Main shut-off valves for water and gas
- ❑ Electrical power master switch
- ❑ Stoves, heating/air-conditioning equipment
- ❑ Chemical storage and gas lines in laboratories
- ❑ Hazardous materials stored by custodians and gardeners
- ❑ Portable, battery-powered PA equipment/radios/lighting
- ❑ Fire extinguishers
- ❑ First-aid equipment
- ❑ Overhead power lines
- ❑ Sewer lines
- ❑ Outside water faucets/hoses
- ❑ Underground gas lines

As you work through this and subsequent steps, make a list of your information needs, such as the locations of sewer and underground gas lines. Then contact the appropriate information source(s) in your school district or community (e.g., the Fire Department or Public Works Office).

Before you proceed with the next steps, review the abbreviated account of school damage resulting from the Coalinga Earthquake. This report will help you gain a better understanding of the problem.

Coalinga Schools Report

At 4:42 p.m. on Monday, May 2, 1983, an earthquake registering 6.5 on the Richter scale struck the Coalinga area. Seconds later there was an aftershock of 5.0 Richter magnitude.

Coalinga has three elementary schools, one junior high, and one high school, serving approximately 1,900 students. The school buildings were constructed between 1939 and 1955. They contain 75 classrooms, plus gymnasiums, auditoriums, libraries, and multipurpose rooms.

Superintendent Terrell believes that death and serious injury would have occurred if school had been in session. The following is an account of the nonstructural damage to these schools:

Windows - Large windows received and caused the most damage. The 31-year-old junior high library had glass windows approximately 8 ft x 10 ft on the north and south walls. The glass was not tempered. All the windows imploded and littered the room with dagger-shaped pieces of glass. Floor tiles and wooden furniture were gouged by flying splinters.

Lighting Fixtures - Approximately 1,000 fluorescent bulbs fell from their fixtures and broke. All of the fixtures in the elementary schools came down, and many in other buildings. None of the hanging fixtures had safety chains. Glass in the older recessed fixtures was shaken out and broken.

Ceilings - Improperly installed T-bar ceilings came down. Glued ceiling tiles also fell, especially around vent ducting and cutouts for light fixtures.

Basements and Electrical Supply - Water pipes which came into the buildings through concrete walls were severed by the movement of the walls. Basements were flooded to five feet.

Since all the electrical supply and switching mechanisms for these buildings were in the basements, all of them were destroyed by water.

Chemical Spills - In the second-floor high school chemistry lab, bottles of sulfuric acid and other chemicals stored in open cabinets overturned and broke. Acid burned through to the first floor. Cupboard doors sprang open and glass cabinet doors broke, allowing chemicals to spill. Because there was no electric ventilation, toxic fumes permeated the building.

Furnishings and Miscellaneous Items - File cabinets flew across rooms; freestanding bookcases, cupboards, cabinets, and shelves fell over. Machine shop lathes and presses fell over. Typewriters flew through the air. Metal animal cages and supplies stored on top of seven-foot cabinets crashed to the floor. Movie screens and maps became projectiles. Storage cabinets in the high school had been fastened to the wall with molly bolts, but they were not attached to studs. They pulled out of the wall and fell to the floor with their contents.

(based on a report prepared by E. Robert Bulman for Charles S. Terrell. Jr., Superintendent of Schools for San Bernardino County, California)

STEP TWO: Identify potential earthquake hazards in classrooms.

The checklist below will help you identify common classroom earthquake hazards that can be reduced or eliminated at little or no cost. Task a subcommittee to survey each classroom. Or ask classroom teachers to conduct their own hazard assessment. Prepare a Classroom Hazard Inventory form (Figure 2) to be used with either approach.

_____Are free-standing cabinets, bookcases, and wall shelves secured to a structural support?

_____Are heavy objects removed from high shelves?

_____Are aquariums and other potentially hazardous displays located away from seating areas?

_____Is the TV monitor securely fastened to a securely fastened platform?

_____Is the TV monitor securely attached to a portable (rolling) cart with lockable wheels?

_____Is the classroom piano secured against rolling during an earthquake?

_____Are wall-mounted objects (clocks, maps, etc.) secured against falling?

_____Are hanging plants secured to prevent them from swinging free or breaking windows during an earthquake?

Classroom Hazard Inventory

Date: _____ Room No. _____

Indicate number of:	Check if applicable:
___Unsecured Bookcases	_____TV monitor unsecured on platform
___Unsecured wall shelves	_____TV monitor on wheeled cart
___Free-standing cabinets	_____Classroom piano on wheels
___Hanging plants	_____Heavy objects on high shelves

List other hazards identified _____

_____

_____

_____

Figure 2. CLASSROOM HAZARD INVENTORY

Figure 3 shows how the committee could use the information from the completed inventory forms to (1) determine the scope of potential classroom hazards throughout the school, and (2) develop plans to reduce these hazards.

COMMITTEE WORK PLAN: CLASSROOM HAZARD ASSESSMENT

- Tally classroom hazards from Classroom Hazard Inventory forms.
- Recommend remedies/objectives.
- Develop and assign tasks.

Planning Problem: Classrooms contain:

___unsecured bookcases.
___rolling pianos.
___unsecured freestanding cabinets.
___unsecured TV monitors.
_____unsecured wall shelves.
_____hanging plants.
_____heavy objects on high shelves.

(Give numbers of bookcases, cabinets, etc., involved.)

Recommendation: Determine and implement best procedures for securing bookcases, cabinets, wall shelves, TVs, and rolling pianos.

TASKS

- Meet with maintenance personnel at school or district office.
- Determine whether or not parents can be recruited to help.
- Determine cost of bolts, brackets, etc.
- Identify possible funding support.
- Establish work schedule.
- Conduct project.

Person Responsible _____ Report Due: _____

Figure 3. COMMITTEE WORK PLAN

Encourage student participation in this hazard assessment. The Guidebook supplement, Earthquake Safety Activities for Children, contains classroom activities designed to increase student awareness of earthquake hazards and student resourcefulness in identifying ways to reduce hazards.

STEP THREE: Identify common earthquake (and other) hazards throughout school buildings.

_____Are toxic, corrosive, and flammable materials securely stored to withstand falling and breaking:

_____Are warning signs posted in areas housing hazardous materials?

_____Are appliances (e.g., water or space heaters) securely anchored?

_____Are fire extinguishers checked annually (or in accordance with fire code requirements)?

_____Are fire extinguishers secured against falling?

_____Are office file cabinets secured against falling; do file drawers have adequate latches to prevent contents from spilling?

_____Are light fixtures adequately supported?

_____Are "portable" buildings properly tied to foundations?

_____Are automatic gas shut-off valves installed?

Windows, especially large pane windows, are prevalent hazards throughout the school. If the use of tinted adhesive solar film is desirable to reduce light and heat, its use will also help hold together fragments of any window panes that crack in an earthquake. "Security Films" with stronger adhesive, however, work better than ordinary "solar films."

STEP FOUR: Identify potential hazards along building evacuation routes.

The key to developing procedures for a quick and orderly evacuation is a thorough assessment of the hazards likely to be encountered en route from classroom and other activity rooms to safe, open-space areas. Help with this assessment and subsequent planning steps may be obtained from your local Fire Department.

_____Do hallways and/or doors contain glass panels?

_____Are these panels of safety (tempered) glass?

Check fire code requirements for safety glass along evacuation routes.

_____Do lockers, bookshelves, and other storage units line hallways?

Following an earthquake, hallways may be cluttered with debris from ceilings, fallen light fixtures, broken glass, and toppled storage units. Students should be advised to anticipate these hazards.

_____Is lighting dependent on electricity rather than sunlight?

If the lighting system fails in enclosed hallways or stairways, resulting darkness will make it difficult to navigate safely. If emergency (battery-powered) lights are available, be sure to secure them against falling.

_____Does your school building have elevators?

Elevators are extremely vulnerable to damage from earthquakes. Ground shaking may cause counterweights and other components to be torn from their connections, causing extensive damage to elevator cabs and operating mechanisms.

Post signs near elevators prohibiting their use in the event of fire AND earthquakes.

_____Do building exit routes pass through arcades, canopies, or porch-like structures?

Columns supporting arcades or porches may fail and roof overhangs may sag or fall.

_____Are clay or slate tiles on roofs of school buildings?

_____Is school building faced with parapets, balconies, or cornices?

Roof tiles, parapets, balconies, cornices, and other facades and decorations may fall during an earthquake. And, because they have been weakened, these components may fall after the ground stops shaking.

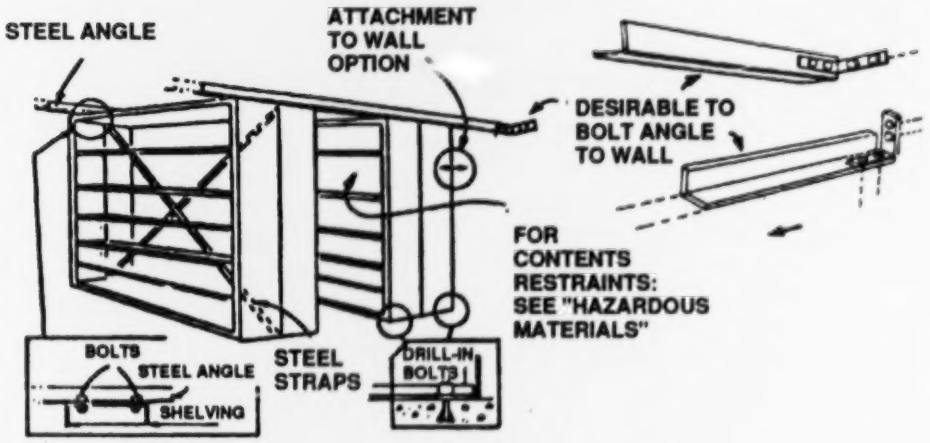
The greatest danger exists directly outside building exits. Students should be cautioned to move quickly past these hazardous areas.

_____Are gas, sewer, and power lines near outdoor assembly area?

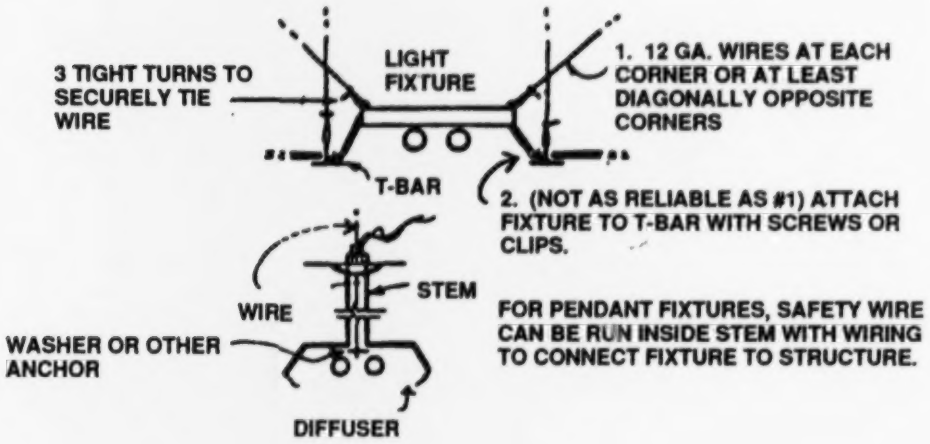
For illustrated "how to" information on earthquake hazard reduction measures, write to the Federal Emergency Management Agency:

FEMA - Earthquake Education Program
500 C Street, S.W.
Washington, D.C. 20472

TALL SHELVING



LIGHT FIXTURES


3 TIGHT TURNS TO SECURELY TIE WIRE
LIGHT FIXTURE
1. 12 GA. WIRES AT EACH CORNER OR AT LEAST DIAGONALLY OPPOSITE CORNERS
T-BAR
2. (NOT AS RELIABLE AS #1) ATTACH FIXTURE TO T-BAR WITH SCREWS OR CLIPS.
STEM
WIRE
WASHER OR OTHER ANCHOR
FOR PENDANT FIXTURES, SAFETY WIRE CAN BE RUN INSIDE STEM WITH WIRING TO CONNECT FIXTURE TO STRUCTURE.
DIFFUSER

STEP FIVE: Identify potential hazards in the neighborhood surrounding your school.

Locate the following potential hazards on a street map available from your city's Planning Office, Chamber of Commerce, or an auto club:

- ❑ Facilities containing toxic, chemically reactive, and radioactive materials (manufacturers and users; e.g., gas stations)
- ❑ High-voltage power lines
- ❑ Transportation routes of vehicles carrying hazardous materials (freeways, railroad tracks)
- ❑ Major underground gas and oil pipelines
- ❑ Underground utility vaults and above-ground transformers
- ❑ Multi-story buildings vulnerable to damage or collapse
- ❑ Water towers, water tanks

Many of the above potential hazards are not readily apparent. Help in identifying their location may be obtained from your Fire Department, city/county Public Works Office, and Building Inspection Department.

STEP SIX: Determine the vulnerability of your community to the following earthquake effects.

- ❑ Strong to violent ground shaking
- ❑ Flooding from collapsed dams/levees
- ❑ Landslides
- ❑ Tsunami (seismic sea waves)

Sources of information about the history of earthquakes in your area and maps depicting the level of ground-shaking intensity from past and projected earthquakes include your state geologist, city/county Planning Office, and geology or geophysics departments at colleges and universities. Information, publications, and maps may also be obtained from the U.S. Geological Survey, Office of Publications, 503 National Center, Reston, Virginia 22092.

Dam failure inundation maps and maps depicting potential landslide areas may be available from the state Dam Safety Office and the state Geological Survey, respectively. A city/county Planning Office or Office of Emergency Services may also have maps or information.

Contact the local or state Office of Emergency Services for information about tsunami risk areas and warning procedures for the coastal areas of Alaska, California, Hawaii, Oregon, Washington, and U.S. Territories.

Earthquake Drills

Because earthquakes strike without warning, life-protecting actions must be taken immediately at the first indication of ground shaking. There will not be time to think through what to do. Therefore, of all earthquake preparedness measures, earthquake drills are the most important. Their purpose is to help students (and staff) learn how to REACT immediately and appropriately.

The essential components of earthquake drills are classroom discussions, demonstrations, and exercises designed to help students learn and practice WHERE to seek shelter and HOW to protect their heads and bodies from falling objects (e.g., debris from ceilings, light fixtures, and shattered glass).

Effective earthquake drills simulate (1) actions to be taken during an actual earthquake and (2) actions to be taken after the ground shaking stops. Building evacuation following an earthquake is imperative due to the potential danger of fires or explosions.

This section will help you determine:

- What dangers to expect during an earthquake.
- What quake-safe actions to take during an earthquake.
- How to conduct classroom drills.
- How to develop procedures for evacuating the school building after an earthquake.
- How to practice and evaluate the effectiveness of your earthquake drills.

The companion to this section is the Guidebook supplement, Earthquake Safety Activities for Children. The supplement is designed for classroom teachers and covers both physical and psychological preparedness through student activities and simulation exercises.

STEP ONE: Hold a staff meeting to discuss earthquake dangers and earthquake response actions.

This step is intended to help you emphasize the need for earthquake safety planning to all school staff members—teachers, secretaries, custodians, and other support personnel. (You may wish to let classroom teachers know that you will hold another meeting with them to discuss student earthquake safety.)

At this meeting, give staff an opportunity to express and discuss their concerns about personal safety. Encourage them to prepare their families to cope safely and effectively during and following an earthquake, especially if family members are separated when this event occurs.

What to Expect During an Earthquake

The first indication of a damaging earthquake may be a gentle shaking. You may notice the swaying of hanging plants and light fixtures, or hear objects wobbling on shelves. Or, you may be jarred first by a violent jolt (similar to a sonic boom). Or, you may hear a low (and perhaps very loud) rumbling noise. A second or two later, you'll really feel the shaking; and by this time, you'll find it very difficult to move from one place to another.

It's important to take "quake-safe" action at the first indication of ground shaking. Don't wait until you are certain an earthquake is occurring. As the ground shaking grows stronger, danger increases. For example:

- Free-standing cabinets and bookshelves are likely to topple. Wall-mounted objects (such as clocks and artwork) may shake loose and fly across the room.

- Suspended ceiling components may pop out, bringing light fixtures, mechanical diffusers, sprinkler heads, and other components down with them.

- Door frames may be bent by moving walls and may jam the doors shut. Moving walls may bend window frames, causing glass to shatter and sending dangerous shards into the room.

The noise that accompanies an earthquake cannot cause physical harm. However, it may cause considerable emotional stress—especially if you're not prepared to expect the noisy clamor of moving and falling objects, shattering glass, wailing fire alarms, banging doors, and creaking walls. The noise will be frightening, but a little less so if it is anticipated.

Earthquake Response Guidelines

During a major or moderate earthquake, the greatest immediate hazard to people in or near a building is the danger of being hit by falling objects. During the ground shaking, the school population is safest finding immediate shelter under desks, tables, or counters.

If INDOORS:

Stay inside; move away from windows, shelves, and heavy objects and furniture that may fall. **Take cover** under a table or desk, or in a strong doorway.

Although doorways have traditionally been regarded as safe locations, it's important to anticipate that doors may slam shut during an earthquake.

In halls, stairways, or other areas where no cover is available, move to an interior wall. Turn away from windows, kneel alongside wall, bend head close to knees, cover sides of head with elbows, and clasp hands firmly behind neck.

In library, immediately move away from windows and bookshelves, and take appropriate cover.

In laboratories and kitchens, all burners should be extinguished (if possible) before taking cover. Stay clear of hazardous chemicals that may spill.

There are no uniform guidelines for protecting students in other areas inside school buildings (e.g., gymnasium and auditorium). DETERMINE PROCEDURES FOR YOUR SCHOOL WITH ADVICE FROM EXPERTS (structural engineers and fire officials.)

If OUTDOORS:

Move to an open space, away from buildings and overhead power lines. Lie down or crouch low to the ground (legs will not be steady). Keep looking around to be aware of dangers that may demand movement.

On the school bus, stop the bus away from power lines, bridges, overpasses, and buildings. Students should remain in their seats and hold on.

Indoors or outdoors, when an earthquake occurs:

TAKE ACTION AT THE FIRST INDICATION OF GROUND SHAKING.

STEP TWO: Hold a special meeting or workshop with teachers to discuss student preparation activities.

Give each K-6 grade classroom teacher a copy of the Guidebook supplement, **Earthquake Safety Activities for Children** to review and discuss. The supplement contains information on earthquake dangers and response actions, along with several classroom activities and earthquake simulation exercises. The activities and exercises are designed to reduce anxiety and increase students' confidence in their ability to cope in an emergency.

An earthquake may not occur during the childhood of your students. However, the earthquake safety lessons they learn at school will stay with them. If other priorities limit the scope of your earthquake safety program and the most you can do is conduct earthquake drills, you will make a difference.

STEP THREE: Develop procedures for holding classroom earthquake drills.

The following earthquake drill is an example of standard response actions to take in classrooms. The complete earthquake drill includes post-earthquake building evacuation to a safe, open-space area. In the event of an actual earthquake, building evacuation takes place after the ground stops shaking.

Sample Classroom Earthquake Drill

Objective: During an earthquake drill or at the first sign of ground shaking, students demonstrate their ability to react immediately and appropriately.

DROP AND COVER

TURN AWAY FROM WINDOWS

STAY UNDER SHELTER UNTIL SHAKING STOPS

LISTEN FOR INSTRUCTIONS

Following the teacher's command, students will:

1. Immediately TAKE COVER under desks or tables, and TURN AWAY from windows.
2. Remain in sheltered position for at least 60 seconds.
3. Be silent and listen to instructions.

During the earthquake drill, teachers will:

1. Take cover.
2. Talk calmly to students.
3. Review procedure for evacuating classroom.

STEP FOUR: Determine and discuss procedures for evacuating building.

Building evacuation following an earthquake is IMPERATIVE due to the possibility of secondary hazards, such as explosions and fires.

Through repeated fire drills, your students undoubtedly have demonstrated their ability to exit the school building in a quick and orderly manner. Building evacuation following an earthquake should also be quick and orderly. It is, however, difficult to estimate how long it will take or how hard it will be for students to maneuver through the debris that might have fallen in their path to safety.

Because surprises lead to confusion and anxiety, students and staff should be told what to expect and how to navigate safely. To emphasize that evacuation takes place only after ground shaking ceases, building evacuation should be practiced as an extension of classroom "drop-and-cover" drills.

_____Have you determined who will give the command to evacuate building?

_____Have you determined how the evacuation command will be given if PA system is not working?

_____Do classrooms exit into an enclosed common hallway?

An aftershock may occur while students are evacuating through a crowded hallway. Discuss advantages and disadvantages of sequentially evacuating classes through hallway. Occasionally practice "drop-and-cover" along evacuation routes.

_____Does your post-earthquake building evacuation route coincide with the route used during fire drills? If not, discuss this with the Fire Department.

_____Have you identified potential hazards along building evacuation route? (See Section 3, Hazard Identification.)

STEP FIVE: Plan for the Unexpected.

Identify all possible emergencies you might have to handle during an earthquake evacuation and generate alternative response procedures. For example, discuss what to do if:

- The power fails.
- The door jams.
- An alternate exit route must be sought.
- Hallway and stairway are littered with debris. (Do your fire drills occasionally simulate blocked corridors?)
- An aftershock occurs.
- There's smoke in the hallway.
- Students are injured and cannot be moved.

STEP SIX: Designate outdoor evacuation assembly area.

Locate a safe assembly area on the school site map.

_____Is this area away from buildings and overhead power lines?

_____Is this area away from underground gas and sewer lines?

_____Does your outdoor, post-earthquake assembly area coincide with fire drill assembly area?

If you answered no to the last question, discuss this with the Fire Department. Both earthquake and fire drill evacuation routes and outdoor assembly areas should be the same to avoid confusion.

However, if you answered no to the first two questions, you should consider an alternative open-space area if the earthquake causes extensive damage (or you suspect potential danger).

STEP SEVEN: Evaluate the effectiveness of your earthquake drills.

Use the following checklist to assess the effectiveness of your current earthquake drill procedures. If you have not, as yet, initiated earthquake drills in your school, use the checklist as a guide for developing and conducting meaningful earthquake drills.

Earthquake Drill Evaluation

_____Are all students and staff familiar with the "drop-and-cover" procedure?

_____Have all students demonstrated their ability to take immediate and correct actions?

_____Do teachers take cover with students during drills?

_____Is there sufficient shelter space under tables, desks, and counters for all students?

_____Do all students know how to protect themselves if no shelter is available?

_____Are teachers and students prepared to remain in quake-safe positions for up to 60 seconds?

_____Are students encouraged to be silent during drills?

_____Are teachers prepared to maintain relative calm and reassure their students?

_____Are students evacuated from classrooms to a safe outdoor area following a simulated earthquake?

_____Does your post-earthquake building evacuation procedure consider the very real possibility that strong aftershocks may occur within minutes after the main event?

_____Do teachers remember to take class roster and response checklists to outdoor assembly area during earthquake drills?

_____Have maintenance staff and all others assigned earthquake response duties practiced their roles during your earthquake drills?

_____Have students been given ample opportunity to discuss their fears and concerns about earthquakes?

_____Have students been instructed on how they can help each other?

_____Are earthquake drills viewed as an opportunity to discuss earthquake preparedness in the home?

_____Have parents been informed about your earthquake safety procedures?

_____Have teachers and other staff members been encouraged to prepare their families to cope effectively during and after an earthquake?

Immediate Response and Care Requirements

A major earthquake will cause widespread damage and may trigger other dangers such as fires and the release of hazardous materials from on-site or in-transit containers. Local emergency personnel will be severely overtaxed. It may be several hours before they are able to respond to every school within the affected community.

Your responsibility to ensure the care and safety of students during the immediate aftermath of an earthquake is especially critical. First aid must be provided. The whereabouts of every student must be known. Small fires must be abated before they get out of hand, and utility systems must be secured.

There is no guarantee that emergency medical or fire personnel will be able to respond to your school during the first "critical" hours following a major earthquake.

Because earthquakes occur without warning, there will not be time to read through a shelf plan before designating roles and responsibilities. This section addresses how you can prepare to carry out effective first-hour emergency response actions. It covers:

- What to anticipate.
- How to evaluate staff resources and training needs.
- What to include in your emergency response plan.
- How to facilitate immediate action.

STEP ONE: Anticipate first-hour priorities.

During the first hour after an earthquake, the principal, teachers, and other staff members must handle many important tasks:

- Attend to the first-aid needs of injured students and school personnel.
- Account for all students.
- Locate missing students and personnel.
- Extinguish small fires before they get out of hand.
- Check damage to utility systems and appliances; if necessary, shut off main power, gas, and water.
- Seal off and indicate areas where hazardous materials have spilled.
- Calm and reassure frightened students.
- Provide all students with identification tags.
- Keep records of students released to parents or other authorized persons.
- Establish communication with emergency assistance and school district officials (see Section 6, Communication).

Determine **who** does **what, where,** and **how** as you work through the steps in this section. The key to effective response is thoughtful preparation that includes planning, training, and practice. Base your initial preparation efforts on your current capabilities. Plans and procedures can then be steadily upgraded as you gain new skills and resources.

STEP TWO: Assess staff skills and identify training requirements.

Many of the actions identified in Step One require special knowledge and training. The following checklist and suggestions will help you determine and improve the current capability of your staff to carry out emergency responsibilities.

- How many faculty and staff members are trained in first aid/ CPR?_____

- Do you keep up-to-date lists of teachers and others certified in first aid/CPR?_____

- How would you provide or enhance first-aid training for faculty and staff?_____

Recommendation(s): _____

_____

- Is first-aid training provided for students?____In what grades?____

- How could you increase first-aid knowledge of the student population?

Recommendation(s): _____

_____

The American Red Cross chapter in your area can provide first-aid courses for children, staff, and parents. Red Cross trainers are enthusiastic about their new first-aid training courses for 2nd to 4th graders and point out that young graduates of the course take great pride in their new knowledge and skills, are more aware of activities that might result in injuries, and consequently, have fewer accidents.

Discuss with the Red Cross the possibility of adapting the youth training program to the school-day schedule (e.g., reading assignments might be accomplished at home to reduce classroom time). You might also explore on-site courses for teachers and parents.

- Do you have procedures for checking gas leaks, turning off utilities (if necessary), and extinguishing small fires?_____

Recommendation(s): _____

_____

- How many faculty and staff members are trained in fire abatement? _____

- How would you provide or enhance fire safety training? _____

Recommendation(s): _____

_____

Discuss with your local Fire Department how to develop a program for training teachers and students. Course content could include fire detection methods, proper use of fire extinguishers, and appropriate response to fire and smoke.

- Do you have procedures for coping with hazardous materials spills?

Recommendation(s): _____

_____

When you encounter a hazardous materials spill, the safest procedure involves sealing off areas, posting signs, and restricting building entry until fire service professionals can assess hazards and carry out cleanup operations.

- Are any staff members trained to carry out search and rescue?_____

Recommendation(s): _____

_____

The purpose of search and rescue is to locate and free people trapped in damaged buildings and to recover critical equipment and supplies.

Invite a representative from your local Fire Department (or a business/industry safety officer) to one of your planning meetings to discuss how the school staff can carry out light search-and-rescue operations. Topics to consider include:

- **Developing a method of searching systematically every room and cubby hole for missing staff and children.**
- **Coping with anticipated and unanticipated hazards such as flooded basements, live electrical wires, and aftershocks.**
- **Determining when rescue should not be attempted, when trapped and/or injured people should not be moved.**

- Would your faculty be able to reduce students' anxiety and fear during this period?

Recommendation(s): _____

_____

Children will be concerned about parents, friends, and pets. They will need continuous reassurance and encouragement to express their concerns.

Convey the likelihood that parents may be delayed for several hours because of traffic. Remind children that parents have been told that you will take care of them until they arrive.

Dispel myths about earthquakes: "The ground will **not** open up and swallow you."

Encourage students to express their feelings through drama, art, and writing activities.

Encourage students to comfort each other. Physical contact helps reduce feelings of separation and isolation.

Discuss the chores that may await them at home. Emphasize the importance of their role in restoring order.

Advise students to anticipate aftershocks and review quake-safe actions.

- Would your faculty and staff be able to cope with their own fears and anxieties?_____

Recommendation(s): _____

_____

Your community mental health services may be able to provide training sessions on how to deal with psychological trauma.

- Have your faculty and staff taken steps to prepare their own family earthquake plans?

Recommendation(s): _____

_____

STEP THREE: Develop procedures and assign roles and responsibilities.

Your emergency response plan should include:

- A chain of command (principal, vice principal, head teacher).
- The local authority responsible for directing emergency response activities.
- A set of procedures and assignments for:
  - ❑ First aid.
  - ❑ Search and rescue.
  - ❑ Student safety and security.
  - ❑ Building safety and security.
  - ❑ Communication (see Section 6).
- The location of outdoor:
  - ❑ First-aid station.
  - ❑ Command and communication station.
  - ❑ Student assembly area.
  - ❑ Student release station.
- An inventory and a map designating the location of emergency equipment and supplies, utilities shutoff, and hazardous materials storage areas.

STEP FOUR: Prepare simple response checklists for each staff member.

The first-hour actions listed in Step One require immediate attention. There will not be time to read through a shelf plan before designating roles and responsibilities. Therefore, to facilitate immediate action, reduce your procedures to brief and specific lists of priority actions to be taken by each staff member. Post these checklists near exit doors of offices, classrooms, library, cafeteria, etc. At appropriate locations, post checklists for securing utilities and sealing off sites of hazardous materials spills.

Consider devising a way for everyone to identify quickly individuals in primary response roles (command, first aid, attendance monitor, etc.). Different colored vests, for example, add to visibility. Also, consider attaching response "action cards" to the vests as backup information.

STEP FIVE: Discuss and coordinate your plan with school district and local emergency services officials.

STEP SIX: Inform parents of your earthquake response plan and their role in an emergency (see Section 6).

STEP SEVEN: Discuss your earthquake response plan with students.

Determine and discuss with students their roles and responsibilities. For example, students should be told **why** it's important to remain on school grounds, **how** you will care for them, and **what** they can do to help.

STEP EIGHT: Exercise your response plan.

The surest way to increase your capability to carry out emergency response actions is to **practice** them. Conduct schoolwide earthquake drills at least twice a year. At least once a year, include an exercise and test of staff roles as part of your earthquake drill.

Communication

Following an earthquake, all systems of communication that are dependent on electrical power or telephone lines may be partially or totally disrupted for several hours. An effective communication plan addresses this problem and presents alternate ways to receive and convey messages.

If parents are not aware of your emergency plans, they are likely to risk their own safety and impede the operation of your response plan to retrieve their children. A plan for communicating with parents before and after an emergency is critical. It may not eliminate the problem, but it will help to reduce congestion, confusion, and anxiety.

This section addresses both issues:

- How to determine alternate on-site and off-site communication needs.
- How to convey emergency information to parents.

STEP ONE: Determine on-site communication needs.

- ❑ Emergency back-up power for intercom system.
- ❑ Battery-powered megaphone/bullhorn to transmit information to students and staff.
- ❑ Battery-powered portable radios (or car radios) to receive information from emergency officials.
- ❑ Battery-powered walkie-talkies to communicate with groups in assembly area and with search-and-rescue teams.
- ❑ Signaling devices (such as whistles).

STEP TWO: Determine off-site communication resources and develop reporting procedures.

Given the level of damage generated by the earthquake, telephone service may be partially or totally disrupted. Disruption of service may also be caused by overloaded circuits.

> **To maintain partial service capability, do not contribute to system overload. During the first two hours, use telephones only to report life-threatening emergencies.**

If your school has a back-up radio communication system, or if you have pre-arranged communications support from volunteer radio operators (e.g., hams), work with your district and emergency services offices to develop reporting procedures.

- Ensure that your reports are clear and accurately reflect the condition of the school population, school buildings, and neighborhood (see Emergency Status Report at the end of this section).
- Each telephone/radio communication should be brief and concise to enable school district or emergency personnel to complete their survey of schools in as little time as possible. Their need is to assess conditions at all schools, determine priorities, and send help where it is most urgently needed.

If there is no way for you to communicate with the outside, your pre-planning should assume that a helicopter and/or ground reconnaissance team will survey the area.

- With school district and local emergency service personnel, devise a visual signal system for all schools in the area. For example, use various colored flags or plastic or canvas panels to signify the type of help needed: medical, rescue, personnel, and one to signify "we're O.K."

- Flags on poles are appropriate for alerting ground reconnaissance teams, however, they cannot be easily seen from the air. Plastic or canvas panels placed in the schoolyard are more appropriate for alerting air reconnaissance teams. Again, coordinate your signal system with emergency officials.

- Think twice about placing any signal on the roof. This could be very dangerous for the signal bearer — particularly during an aftershock.

STEP THREE: Submit a copy of your communications plan to your school district and local emergency response offices.

All communication plans should be coordinated with the school district office and with primary emergency response personnel in your community.

STEP FOUR: Develop procedures for conveying emergency information to parents.

If parents are not repeatedly made aware of your earthquake safety policies:

- Expect a flood of telephone calls (if the system is working).

- Expect a major traffic jam in front of your school.

- Expect unauthorized persons (neighbors, friends, etc.) volunteering to take students home.

At the beginning of each academic year, parents should be advised of the school's emergency plans and especially of your earthquake safety policies. These policies and the rules you expect parents to follow should be firmly stated at parent meetings and in frequent letters to parents.* Your "Letter to Parents" might include the following:

In the event of an earthquake:

- No student will be dismissed from school unless a parent (or individual designated by a parent) comes for him/her.
- No child will be allowed to leave with another person, even a relative or babysitter, unless we have written permission to that effect or that particular person is listed on the student's emergency card in our files. With this in mind, if your child's card is not up-to-date, please request a new card from our office.
- All parents, or designated parties, who come for students must have them signed out at the office or at the temporary Student Release Station at the entrance to the schoolyard. Signs will be posted [indicate where] if this alternate location is required.
- We are prepared to care for your children in times of critical situations. If you are not able to reach the school, we will care for your child here. We have a number of people with first-aid certificates, and we will be in communication with various local emergency services. We do ask for your help in the following areas:
  - — Please do not call the school — we must have the lines open for emergency calls.
  - — Following an earthquake or other emergency, do not immediately drive to the school — streets and access to our school may be cluttered with debris. The school access route and street entrance areas must remain clear for emergency vehicles.
  - — Do turn your radio to_____or_____on the A.M. dial. Information and directions will be given over the radio.

** Consider sending letters immediately after the occurrence of significant earthquakes in the U.S. and other countries. Start your letter with "On...., a damaging earthquake occurred in.... Because our school is located in an earthquake-prone area, we want to remind you that in the event of an earthquake...."*

Emergency Status Report

Time Report Filed: _____

IMMEDIATE ASSISTANCE REQUIRED

_____None ____Medical ____Fire ____Search and Rescue _____Support personnel

CONDITION OF STUDENTS

___ All accounted for ____No injuries ____No immediate help required

___ Missing (number) Names:_____

_____

___ Trapped in building (number) Names:_____

_____

___ Injured (number) ___ Number requiring immediate medical attention

Type of Injury Name

_____ _____

_____ _____

_____ _____

CONDITION OF STAFF

___ All accounted for ____No injuries ____No immediate help required

___ Missing (number) Names:_____

_____

___ Trapped in building (number) Names:_____

_____

___ Injured (number) ___ Number requiring immediate medical attention

Type of Injury	Name

CONDITION OF SCHOOL BUILDING AND GROUNDS

E.g.: walls cracked, fallen light fixtures, shattered windows, broken water pipes, flooding, etc.

CONDITION OF NEIGHBORHOOD

E.g.: fallen power lines, debris-cluttered streets, etc.

Update

Time Filed: _____

___Number of children remaining at school

___Number of staff members remaining to care for children

___Assistance required: _____ _____water _____food blankets

_____ additional personnel (number) to assist in student care

Post-Earthquake Shelter

Within a few hours of a major earthquake, most parents will have come for their children. However, many parents may be unable to reach the school for several hours because of damage to transportation routes. Some parents may be casualties.

Children should not be released to travel streets cluttered with debris from damaged structures and fallen power lines. Even if they managed to get home, how would they cope if no one was there?

This section provides suggestions for developing both short-term and extended care and shelter plans. Section contents include:

- How to develop care and shelter planning assumptions.
- How to estimate the number of students requiring care and shelter.
- How to estimate short-term care and shelter requirements.
- What to consider in providing long-term care and shelter.

STEP ONE: Develop a list of care and shelter planning assumptions.

For example:

- An earthquake could occur at any time during the school day.
- The short-term care and shelter period may extend up to three hours following normal dismissal time.
- The Long-term care and shelter period may extend up to 72 hours.

It may take 12 to 24 hours before alternate care facilities (e.g., American Red Cross Mass Care Shelters) are ready to receive the student population and others seeking shelter.

- The school population may be required to remain outdoors for an extended period.
- Unfavorable weather conditions (e.g., extremely high/low temperatures, rain/snow) may occur during this period.
- Expert judgment may be required to determine if buildings are safe for re-entry. Buildings must be inspected to determine:
  - damage to utilities.
  - fire hazards.
  - hazardous materials spills.
  - damage to non-structural components (e.g., fallen light fixtures and ceiling tiles, broken windows and pipes, etc.).
  - damage to structural components (columns, beams, floor or roof sheathing, load-bearing walls. and foundations).

In some cases (e.g., inclement weather), it may not be desirable or reasonable to hold the school population in an open area over an extended period. School principals may need to make a reasonable judgment concerning re-entry of all or portions of the school building. Since liability concerns may influence such a decision, encourage your school district or school board to address this issue. Strategies to explore might include:

- **Developing post-earthquake building re-entry guidelines for school principals—based on the advice of a structural engineer or architect experienced in earthquake design.**

- **Recruiting local building engineers to respond to each school in the district within a few hours after a damaging earthquake.**

Additional help may be available from the district's building and maintenance supervisor, city/county building inspection department, and local office of emergency services.

STEP TWO: Estimate number of students requiring shelter and care.

Determine the number of children with both parents working (or one, if single-parent family).

With this information (supplemented, if possible, with travel distance), estimate probable separation time and number of students to be cared for at school. For example:

100 students may require care for 4 hours,

60 students may require care for 8 hours, etc.

With the help of the nurse assigned to your school, determine how long you may need to shelter students requiring special care or medication.

STEP THREE: Determine short-term care and shelter requirements.

- How will you provide each student with necessary identification?
  - — Child's name, age, home address, phone.
  - — Parents' names, work addresses, and phones.
  - — Name, address, and phone of nearest relative.
  - — Any medical or emotional problems that may warrant professional treatment.

Recommendation(s): _____

_____

- How would you handle the convergence of parents on the school grounds?

Recommendation(s): _____

_____

- How would you keep track of children released to parents?

Recommendation(s): _____

_____

- How would you provide outdoor sanitation facilities? How soon could you put your outdoor sanitation plan into operation?

Recommendation(s): _____

_____

- How would you cope with adverse weather conditions?

Recommendation(s): _____

_____

In estimating and solving outdoor shelter problems, consider the practical knowledge and support you could obtain from youth groups (e.g., scouts) attending your school.

- How would you reduce anxiety and fear during this period?

Recommendation(s): _____

_____

Until children can be reunited with their families, they will continue to worry. With each passing hour, they will become more anxious and afraid that they may be left alone. Although you may have addressed this problem during your immediate response planning effort, it's important to provide continuous reassurance and encouragement.

- If you are ordered to evacuate the school grounds, how will you conduct the children to another site?

Recommendation(s): _____

_____

- How will you communicate the location of the evacuation site to parents?

Recommendation(s): _____

_____

STEP FOUR: Identify additional requirements for long-term care and shelter.

Within each school district, one or two schools may have been designated as community emergency care shelters. The Red Cross has developed general standard procedures for equipping and operating these shelters. Their guidelines may be modified and used in developing this phase of your shelter plan.

- What supplies are needed for extended care and shelter?

  — First-aid supplies.

  — Soap, towels, cleaning and sanitation supplies and equipment.

  — Food and cooking equipment.

  — Clean water.

  — Bedding.

  — Additional provisions for outdoor cooking (barbecue grills, charcoal, etc.).

Recommendation(s): _____

_____

Except for some very basic supplies, it is not practical for schools to store large quantities of water, food, bedding, etc. Parents and neighbors may be recruited to store and deliver these items when needed.

- Have you identified special needs (e.g., maintenance medication requirements) of faculty, staff members, students?

Recommendation(s): _____

_____

- Have you estimated additional staff needed for an extended care period?

  — Design task sheets outlining duties and responsibilities for each support position.

  — With emergency services officials, plan methods of registering support personnel as disaster workers **before** using their services.

Recommendation(s): _____

_____

- How would you recruit some parents to stay and help care for children and relieve teachers?

Recommendation(s): _____

_____

- After your buildings have been inspected by a qualified person, would you be prepared to designate rooms safe and suitable for medical care, feeding, sleeping, recreation?

Recommendation(s): _____

_____

- Do you have a procedure for keeping records of the shelter population up-to-date?

Recommendation(s): _____

_____

- How would you deal with neighbors seeking shelter at your school? If your school is not a designated shelter, determine whether or not you have an obligation to serve the community.

Recommendation(s): _____

_____

The American Red Cross is your best source of help for developing the shelter components of your earthquake safety plan. The Red Cross provides shelter management training courses, guidelines, and lists of emergency supplies.

Need More Help?

Publications — Videos — Workshops

For an up-to-date list of resources and sources of information for school earthquake safety programs, write to the Federal Emergency Management Agency:

FEMA — Earthquake Education Program

500 C Street, S.W.

Washington, D.C. 20472

Ask for: SCHOOL EQ SAFETY INFO

* U.S. Government Printing Office: 1990 — 725-150/20570